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PROTASPARAGUS AFRICANUS (ASPARAGACEAE) A SERIOUS WEED FOR SOUTH-EASTERN QUEENSLAND

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Summary

***Protasparagus africanus*, an introduced weed from South Africa, is described and figured. Notes on its distribution and ecology are given with a key to the naturalised taxa of the Asparagaceae in Australia. The new combination *Protasparagus densiflorus* cv. Sprengeri is made based on *Asparagus sprengeri* Regel.**

Since the early 1970's, specimens of the Southern African *Protasparagus africanus* (Lam.) Oberm. (Asparagaceae) have accumulated in Queensland herbaria. Introduced as a garden ornamental, this may be the plant mentioned by Bailey (1909) as *Asparagus racemosus* Willd. (= *Protasparagus racemosus* (Willd.) Oberm.) as 'A very troublesome weed', although it is possible that he was referring to the native *P. racemosus* (Willd.) Oberm. *P. africanus* has now become naturalised in a number of localities in south-eastern Queensland. **Fig.1.**

Obermeyer (1983, 1984) considered that the species referred to *Asparagus* by Baker (1875) and Jessop (1966) were better considered as belonging to three separate genera. This approach has been followed by Clifford & Conran (1986). A total of nine species of the Asparagaceae are found in Australia, *Asparagus* (1), *Myrsiphyllum* (3) and *Protasparagus* (5), but only *P. racemosus* is native. The naturalised species occur in eastern or southern Australia, with *M. asparagoides* (L.) Willd. also in Western Australia.

Other species, many with distinctive horticultural forms, are commonly cultivated and further naturalisations may occur. Huttleston (1970) reinstated the distinctive orticultural form of *A. densiflorus* (Kunth.) Jessop, previously known as *A. sprengeri*, as a cultivar he named *A. densiflorus* cv. *Sprengeri*. As this now belongs in Protasparagus, a new combination for this cultivar is made here.

Protasparagus densiflorus cv. Sprengeri (Regal) Conran & P. Forster, **comb. nov.**

Asparagus sprengeri Regel., Act. Hort. Petrop. 11: 302 (1890). **Type:** described from a cultivated specimen from Durban, fide Jessop (1966) n.v.

The naturalised species of the Asparagaceae in Australia are distinguished by the following key. Apart from *P. africanus*, only *Myrsiphyllum asparagoides* is regarded as a serious weed, while the other species keyed are only minor garden escapes.

1. Flowers unisexual . . . . . **Asparagus officinalis** L.
   Flowers hermaphrodite 2
2. Aerial stems annual 3
   Aerial stems perennial 5
3. Fruit pale bluish-grey . . . . . **Myrsiphyllum declinatum** (L.)Oberm.
   Fruit red 4
4. Cladodes single at leaf axils, broadly lanceolate . . . . . **M. asparagoides**
   Cladodes 3 per leaf axil, narrowly lanceolate . . . . **M. scandens** (Thunb.)Oberm.
5. Inflorescences racemose 6
   Inflorescences not racemose 7

6. Cladodes flattened . . . . . **Protasparagus densiflorus** (Kunth.)Oberm.
   Cladodes subulate . . . . . **P. racemosus**
7. Plants not climbing, spines absent . . . . . **P. virgatus** (Baker) Oberm.
   Plants climbing, spines present 8
8. Berries black; flowers few, terminal . . . . . **P. plumosus** (Baker) Oberm.
   Berries orange-red; flowers numerous, axillary . . . . . **P. africanus**

Three species, *M. asparagoides* (as *A. asparagoides* (L.) Wight), *P. densiflorus* (as *A. densiflorus* (Kunth) Jessop) and *P. plumosus* (as *A. setaceus* (Kunth.) Jessop) are also recorded as naturalised on Lord Howe Island (Rodd & Pickard 1983).

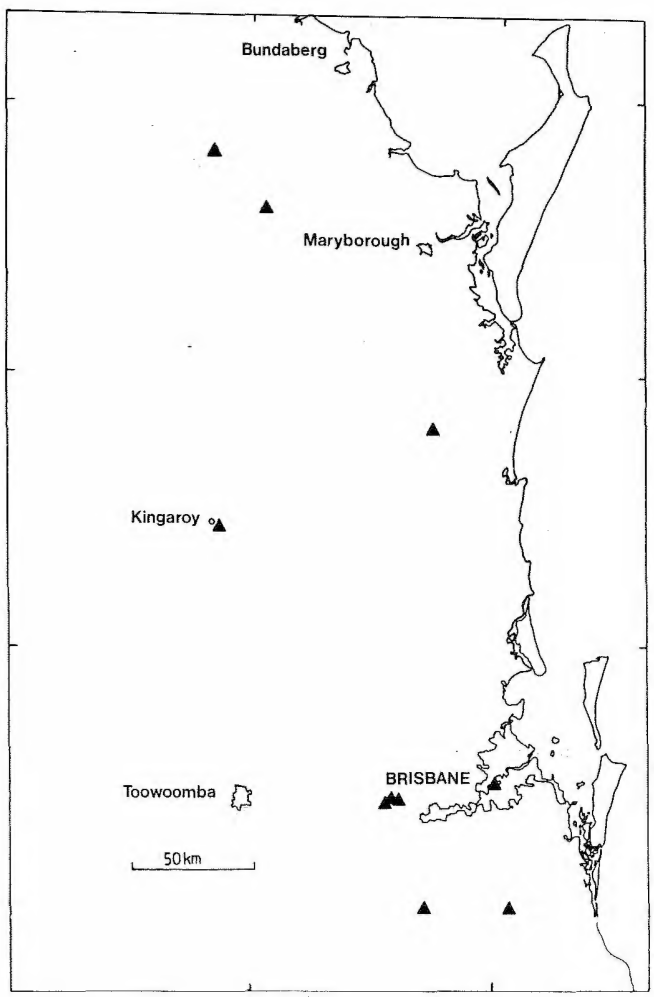

Fig. 1. Distribution of *Protasparagus africanus* based on herbarium specimens.

Protasparagus africanus (Lam.) Oberm., S. Afr. J. Bot. 2: 243 (1983). *Asparagus africanus* Lam., Encyl. 1: 295 (1783). **Type:** Cape Province **without** precise locality, *Sonnerat* s.n. (P) *n.v.*

Vigorous, fibrous rooted, rhizomatous, woody-stemmed climber to 3–5 m high. Cladodes numerous, in fascicles, 8–15 mm long, ascending, arcuately curved, subulate to flattened. Axillary spines well developed, to 15 mm long. Stems to 10 mm diam., longitudinally striate, dark reddish-brown. Flowers axillary, rarely terminal, few to numerous per axil, 5–7 mm diam., white. Pedicels 2–3 mm long, pericladium 3–7 mm long. Tepals 2.5–4 mm long, 1–2 mm wide. Stamens 2.5–3.5 mm long; filaments ± erect, 1.5–3 mm long; anthers 5 mm long, yellow. Ovary ovoid to globose, 1–2 mm long; style capitate to minutely trifid, ca 1 mm long. Fruit a berry, 5–6 mm diam., bright orange-red, single-seeded. Seed globose, 3–4 mm diam., shiny, black. **Fig. 2.**

Queensland. BURNETT DISTRICT: Wheelbarrow Ck, Yerilgah Stn, 16 km SSE of Mt Perry, Sep 1985, *Forster* 2196 (BRI); Kingaroy, roadside of Malar Rd, Oct 1976, *Wenzel* 77 (BRI). WIDE BAY DISTRICT: Dallarnil, *ca* 16 km from Biggenden on the Childers Rd., *Stanley & Ross* 97 (BRI); Mothar Mountain near Gympie, Nov 1978, *Burke* 2 (BRI). MORETON DISTRICT: Eagle Heights, entrance to Palm Grove National Park, Mt Tamborine, Dec 1979, *C. Sandercoe* s.n. (BRI); roadside, N of Haigslea, NW of Ipswich, Apr 1978, *Elsol* 276 (BRI); Uni. of Qd mine, Indooroopilly, May 1984, *Conran* 164 (BRI, BRIU, NSW, MEL, PRE); 1 km NW of Tallegalla, 4 km SW of Marburg, May 1984, *Conran* 165 (BRI), Aug 1985, *Forster* 2089 (BRI); Guyatt Park, Brisbane R., St Lucia, Jun 1984, *Conran* 226 (BRI): Uni. of Qd, St Lucia, Sep 1984, *Conran* 261 (BRI).

Ecology: This species is most prominent in remnant semi-evergreen vine thicket/brigalow forest communities, particularly in the Marburg–Boonah districts, and is also present in many moist gullies and places of disposal for garden rubbish. The most noticeable characteristics of this exotic, is its apparent ability to outcompete and smother much of the native vegetation among which it occurs.

A study comparing the naturalised *Myrsiphyllum asparagoides* (L.) Willd. (as *Asparagus asparagoides* (L.) Wight) and the native *Clematis microphylla* DC. (Ranunculaceae) in Western Australia (Fox 1984), found that the exotic had more viable seed which germinated at higher temperatures and established faster. Fox considered that these characteristics may enable *M. asparagoides* to successfully compete with *C. microphylla*, which has obvious implications for long-term community floristic composition and eradication of the alien.

In south-eastern Queensland, it has been observed that the Silvereye (*Zosterops lateralis lateralis* (Latham)) (M. Tucker, personal communication, 1985) and the Southern Figbird (*Sphecotheres viridis vieilloti* Vig. & Horsf.) feed on the ripe fruit of *P. africanus*. If these birds also effectively distribute the seed, the potential range for the weed is much greater than its known range, ignoring establishment and survival constraints. **Fig. 3.**

In addition, Clifford & Hamley (1982) recorded the dispersal of an *Asparagus* (*Protasparagus*) species by *Physignathus leseurri* (Gray) (Agamidae) in the Moggill area of south-eastern Queensland. Although they listed the species as *A. retrofractus*, this is uncommon in that area and the seedlings they discussed were probably those of either *P. africanus* or *P. plumosus*.

While *P. africanus* occurs primarily in disturbed communities, its presence in remnant semi-evergreen vine thicket/brigalow forest communities has implied long-term ecological and genetic consequences. These remnant patches of vegetation, although individually small in size, possess a diverse flora including several rare and endangered taxa and are in many instances the only indication of the original more widespread vegetation of the area.

Due to this diversity, it would not be advisable that widespread herbicidal use is undertaken for control. Stockard *et al.* (1985) assessing rainforest regeneration at Wingham Brush, New South Wales, found that a combination of manual removal and selected herbicidal usage, based on a flexible management approach, was reasonably successfull in the control of exotic vines. This weed does not pose a major threat to agricultural productivity, and as such, infestations of it in native vegetation on private land are unlikely to receive attention from landowners. This paper aims to draw attention to this weed with the hope that interested landowners and conservationists will initiate eradication programs, while preserving the native vegetation.

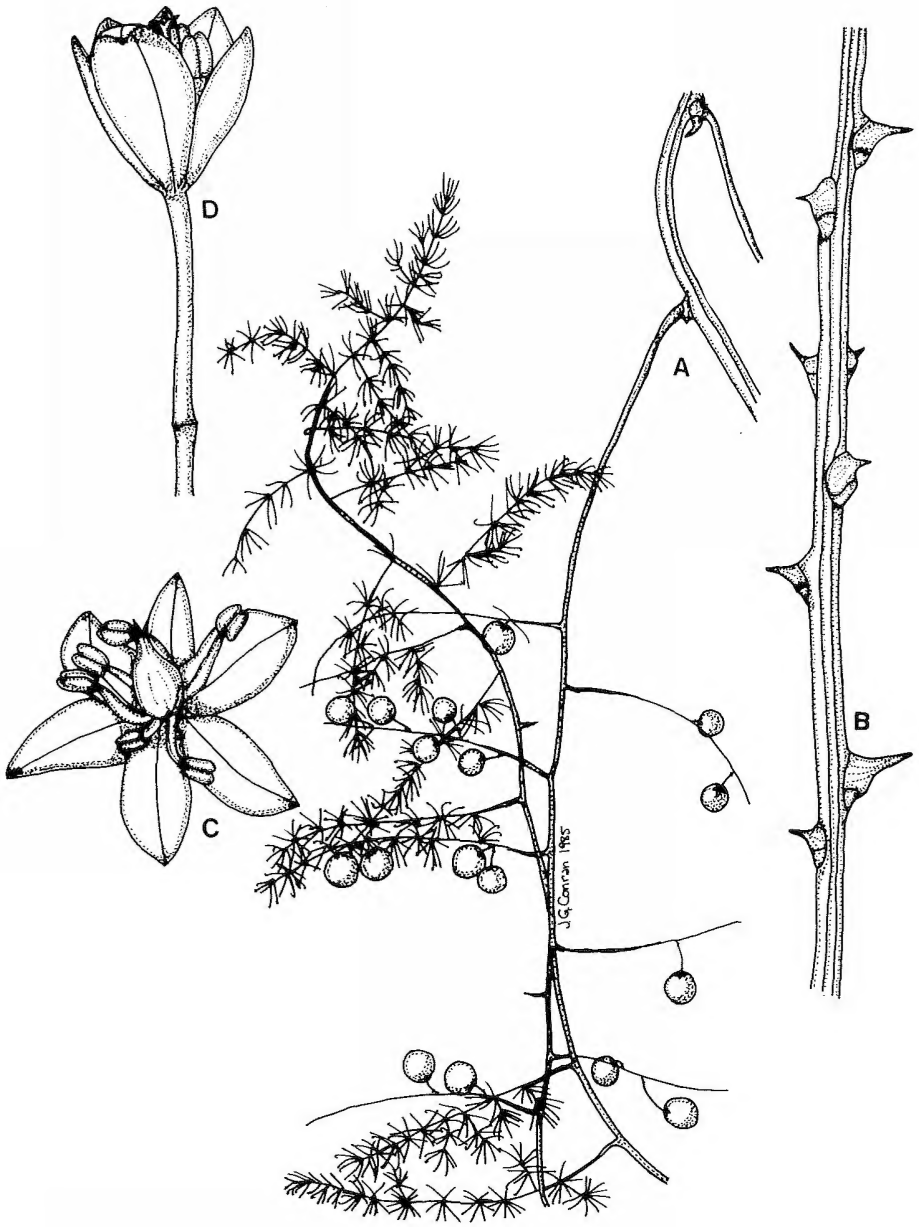

Fig. 2. *Protasparagus africanus*: A. fruiting branch × 5/8. B. mature stem showing axillary spines × 5/8. C. open flower × 6. D. partially opened flower showing pedicel and well developed pericladium × 6. All from *Conran* 164.

Fig. 3. Distribution of native avifauna known to feed on *Protasparagus africanus*, box indicates known area of naturalisation; dotted line indicates distribution of *Sphecotheres viridis* (after Ford 1975, Blakers *et al.* 1984); dashed line indicates distribution of *Zosterops lateralis* (after Blakers *et al.* 1984).

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